

JPRS 82496

20 December 1982

Japan Report

No. 163

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POLITICAL AND SOCIOLOGICAL

PROSPECT FOR LDP, ELECTIONS ASSESSED

Tokyo SHUKAN DAIAMONDO in Japanese 13 Nov 82 pp 26-30

[Article by Dokkyo University Professor Rei Shiratori: "A Scenario for Great Political Turmoil"]

[Text] Why Prime Minister Suzuki Resigned

The announcement of Suzuki's resignation on 12 October may have appeared rather sudden to the public but there may be logic to it. The direct cause of his resignation could be to avoid being asked to resign by the unanimous decision of the Supreme Advisory Council of the Liberal Democratic Party.

Ironically, all members of the council--made up of former prime ministers and chairmen of both houses--are in fact either nonmainstreamers or antimainstreamers. In view of the council meeting coming up on the 14th, it is believed the direct reason for resignation was that he decided that it would be impossible to reject the resignation request and continue holding onto the power. That is why, Suzuki gave "harmony of the party" as his No 1 reason for resignation.

From the economic and financial situations, it can be assessed that, as a political leader, Suzuki showed minimal sound judgment in looking at situations objectively and making decisions according to his own capability.

If he announced his resignation to avoid being asked to resign by the council, a serious self-examination of the present new leaders of the LDP would be demanded. As known previously, the Suzuki Cabinet lost the support of the people and reached the end of the road as far as policy is concerned. The deficit exceeding 5 trillion yen expected by the end of this fiscal year had already been discussed by the Budget Committee in June and the recent public poll showed that nonsupporters of Suzuki outnumbered the supporters by almost twice.

Under these situations, the so-called new main leaders of the LDP should have determined the situations objectively and turned the political situation around earlier in response to the voices of the people. If that had been done, the recent confusion may have been averted.

Preliminary Election--Narrow Margin Between 1st and 2d

After Suzuki's resignation announcement, the internal activities of the LDP vacillated in a very complicated form. First of all, the three main factions of Suzuki, Tanaka and Nakasone came out with the need to follow up on the administrative reorganization of the Suzuki's administration, and secondly, to support Nakasone, director of the Administrative Management agency, on the logic that a political vacuum should not be permitted from the economic and political situations.

Regarding this, the three antistream factions of Fukuda, Kawamoto and Nakagawa, in the first place advocated that the administration of the mainstream faction has come to a standstill in policy and political posture which led to Suzuki's resignation; therefore, a turnaround of the entire political posture and policy is more essential than anything else. Secondly, they insist that since Suzuki's resignation came after the LDP's preliminary presidential election date was set, a closed door election of a leader should be abolished and the preliminary election should be held.

This confrontation between the mainstream and antimainstream factions turned into a confrontation of two organs regarding either: elect the presidential successor through coordination of the four-member executive council made up of the LDP president, secretary general, chairman of the Political Affairs Research Committee and chairman of the Executive Council or election by the Supreme Advisory Council. However, as long as both factions do not approve of basic negotiations, a solution by negotiations will not materialize and will end in failure, thus a move was made toward accepting candidates for the preliminary election to be held on Saturday the 16th based on the understanding that no campaigning would be conducted during the 1 week of talks.

Four candidates for the preliminary election to start from 10 am of the 16th were accepted: Nakasone as a unified candidate of the mainstream faction and Kawamoto, Abe and Nakagawa from the antimainstream factions. The 1-week negotiation appeared to have produced a compromise proposal of splitting the president and prime minister by putting up Nakasone as prime minister and Fukuda as president, but ironically, the proposal was rejected by candidate Nakasone who wanted to negotiate. The negotiation ended early on the 23d and they decided to jump into a preliminary election without going through the campaign process.

A future scenario cannot be determined at the present stage. However, various scenes can be imagined.

The first scene of the scenario is the preliminary election and the second scene is the main election of Diet members of the LDP and Liberal People's Council and the third scene is the designation of prime minister by the Diet.

Two situations can be given for the first scene of the preliminary election. First is when Nakasone attains the No 1 position and another is when Kawamoto becomes No 1 and Nakasone No 2. Voters in the preliminary election will consist of LDP party members and members affiliated with the Liberal People's

Council, an ally of the party. Various predictions surrounding the 1.04 million votes from these members are being made.

It is generally said that Kawamoto will receive 300-400,000 votes; Nakasone, Suzuki and Tanaka factions between 150-200,000 each; the Fukuda faction with less than 150,000 and the Nakagawa faction around 70,000, and if these are added, Nakasone will definitely outnumber Kawamoto. But in actuality, Nakasone is the only mainstreamer and Kawamoto, Abe and Nakagawa are anti-mainstreamers.

The first problem to be considered is the outcome of this 3-to-1 ratio.

The second problem is that the tallying method used in the preliminary election between Fukuda and Ohira in 1978 was a two-stage method where a candidate receiving most votes in various prefectures can carry the entire votes of those prefectures and add them to the national total, but in the coming election, mail-in votes coming directly to the party headquarters are tallied as they come in. Since the number of votes for which candidates and from which prefectures is not known, factional pressure as a whole will weaken.

The third problem of Nakasone is that there is considerable distrust against him especially on defense policy on the part of a large portion of the Suzuki faction--most of whom supported Ohira rather than Suzuki. There is also opposition against his political stance known as the "weather vane" among the party members and allies of the Tanaka faction because Nakasone joined the Miki faction during Miki's administration at which time the arrest of former Prime Minister Tanaka took place.

Therefore, assuming that Nakasone receives 150-200,000 votes, the Tanaka faction, in actuality, will receive two-thirds and Suzuki about half of the firm votes. On the other hand, there is a possibility of Kawamoto's strategy at the final stage to have both Nakagawa and Abe as candidates and instruct the supporters to vote for Kawamoto to preserve his influence, and at the same time, secure an advantageous position in the next administration.

In the first scene of the preliminary election, the difference in the number of votes secured is expected to be small, whether Nakasone or Kawamoto is elected.

If Nakasone wins in the first scene, Kawamoto may decline his candidacy in the second scene of the main election. Consequently, Nakasone, more likely, will be elected unanimously as president of the party. Even if Kawamoto remains in the second scene, Nakasone will still be elected by nearly a two-thirds majority. In that event, the LDP will become unified and Nakasone should be elected in the third scene, a designation of prime minister by the Diet. If the scenario follows as given here, Nakasone's political posture, especially the hard line hawkish posture on defense and diplomacy, and moreover, the support and influence of the Tanaka faction, will lead to unified opposition parties' confrontation against the Nakasone cabinet.

In 1983, a statement of the prosecutor's office and also a decision of the court will be handed down on the Lockheed case involving Tanaka. If at that time, the opposition parties call for a vote of no confidence, the antimainstream factions probably will not be present to vote because of possible political implications. Even though this may not happen, the difficulty of obtaining national support on the tough defense and diplomatic posture of Nakasone, in view of the strong public opinion on the decision of the Lockheed case and military reduction, will make the LDP reduce the number of candidates in the House of Councilors election. The entire antimainstream factions will then tackle the political responsibility of Nakasone who will be forced to step down.

Next, Cabinet to Last Only Till Next July

On the other hand, if Kawamoto wins first place in the preliminary election, he also will win by a slim margin. Nakasone had already made clear that he will run in the main election even if Kawamoto wins in the preliminary election. A race between Kawamoto and Nakasone will ensue among the LDP affiliated Diet members. In that case, Nakasone will be elected as president of the LDP through the support of three mainstream factions which make up nearly two-thirds of the Diet members. However, since Kawamoto led in the preliminary election in this instance, he can become a candidate for prime minister to be designated by the Diet.

There is a possibility in such a situation that sufficient votes from the opposition parties will go to Kawamoto in the third scene. Makieda of Sohyo announced his support of Kawamoto in this situation and chairman Sasaki of the LDP is going along with support for Kawamoto. Tagawa, a representative of the New Liberal Club, expressed support for Kawamoto from the stand of anti-financial influence and anti-Tanaka. The same can be said of the Social-Democratic League.

When that occurs, the idea of a split president and prime minister with Nakasone as president of the LDP and Kawamoto as prime minister will become a reality. Whether President Nakasone, who will be in control of the mainstream factions, is able to purge Kawamoto and the rest is out of the question; therefore, the LDP, in essence, will end with two political parties.

As for Prime Minister Kawamoto, who will be faced with a two-thirds opposition within the LDP, a possibility of a vote of no confidence will arise due to economic and political problems, especially on the National Personnel Authority problem and may, by chance, encounter extreme administrative difficulties. If the House of Councilors election takes place in July with split parties, a peculiar situation of voting for one LDP member, although there will be two, will arise because of the restricted roster system of proportional representation in the national constituency. Defeat for the LDP can be predicted and the Kawamoto cabinet will be pressured by the Nakasone mainstream faction to bear the responsibility and resign.

Whether the scenario ends with the first scene or the second scene, the next cabinet will last only until next July.

Four Factions Leading To Split of LDP

During the adjustment prior to the preliminary election, the influence of Tanaka diminished and the influence of Fukuda also dropped because he chose to run for presidency during the negotiation. If either Nakasone's or Kawamoto's regime ends by July's House of Councilors election, the LDP will enter an age of new leadership for the first time, and at that time, a relatively long-term administration--lasting 2 years--will emerge. When this occurs, the LDP will be controlled by the people who kept quiet in one form or another until now, such as Miichi Miyazawa, Noboru Takeshita and unsuccessful candidates Abe and Nakagawa.

A major overall change in the framework of the party politics and a political reorganization are less likely from the preliminary election to the House of Councilors election. Secretary-general Yamaguchi of the New Liberal Club talked of a concentration of moderates, but the internal structure of the club is far from being united.

The New Liberal Club approved in form the restricted roster system of proportional representation in the House of Councilors last year but Yohei Kono is opposed to it and abstained from voting in the House of Representatives. The leaders of the New Liberal Club indicated that the solidification of the club is more important than the reorganization or concentration of moderates, and since the club in essence is conservative, it is quite unlikely that it will join with Shaminren (Social-Democratic League) which is aiming toward a new socialism in the form of revision or reform.

The Komeito (Clean Government Party) made known its basic and independent alignment when the New Liberal Club approved [proportional representation] at the last year's House of Councilors election. Ten years from now, a concentration of moderates may come about, but the possibility of this happening in the near future is even more remote than last year.

Except, there is a part which can change the political structure. With the adoption of the restricted roster system of proportional representation by the House of Councilors national constituency, a reinforcement of groups from the New Liberal Club, Social-Democratic League, nonpartisan and Ichi-no-kai of the House of Councilors is possible in the House of Councilors' national constituency.

Basically, however, they are not a concentration of moderates but a form of concentration from the standpoint of restricted roster within the national constituency. While each advocates armament reduction, environmental issues, improvement of women's position, etc., it is believed those with similar claims will join to backup their positions.

Another likely change is the possible split of the LDP if, for example, Kawamoto becomes the prime minister and Nakasone the president. First of all, the size of the LDP has grown considerably but, in contrast, less cohesiveness toward the leaders of the party is seen. During the critical time facing the party, the people acted when it called for unity of the party to preserve the

political power but this is not the case now. Since the double elections of 1980, the LDP has occupied a very large number of seats resulting in decreased cohesiveness within the party. At the same time, a certain tacit understanding of forming a single force (political party) by Tanaka alone has emerged gradually.

Second is the tremendous change in the way the people think. In a certain poll, 70 percent of the people responded that if the internal conflicts continue within the LDP, it would be better for the future of Japanese politics to form two political parties and take over the administration alternately. The point that the 70 percent of the people feel that the LDP should be split into two parties will gradually reflect the reality.

Third is that the LDP as a single unit is getting into a more difficult situation even on policy issues. Take the problems of economic recovery or financial reconstruction for example. One method calls for a drastic cut in the income tax to stimulate the entire economy for the expansion of tax revenues. Another way calls for a direct form of higher taxation--income tax. These two methods are being molded gradually into a definite (final) form within the party between the mainstream and antimainstream factions.

Similarly, a certain change in the position on the defense policy has taken place internally. First of all, the worsened financial situation in the United States has placed more and more pressure on the allied nations to shoulder greater defense responsibilities. This means that America wants Japan to increase its defense budget even more, for example, by increasing the budget for the construction of the U.S. military facilities around Misawa Base.

In response to this pressure, an increasing number of LDP members are pushing toward a radical form of defense buildup beyond the framework of 1 percent of the GNP and toward expanding Japan's defense responsibility in the entire area north of the Philippines as insisted on by the United States and not limited to the 1,000 nautical mile sea lanes. But on the other hand, Asian countries including China are becoming more apprehensive toward Japan's greater defense spending and defense buildup. Even though the U.S. request for defense buildup cannot be ignored, the voices within the LDP which call for reduction of armaments if possible because we cannot ignore the Asian voices of apprehension toward Japan's defense buildup are beginning to become more explicit little by little.

Up to now, the Foreign Ministry, being pressured by the United States, doubled up, for example, with the Defense Agency to increase the defense budget, but the Foreign Ministry, hereafter, can no longer ignore the voices of Asia as shown in the textbook issue. It is believed the joint struggle with the Defense Agency to increase defense spending as in the past is not possible anymore.

The statement by Chairman Makieda of Soho-yo, "If unity can be achieved on military reduction, we can join hands with the Liberal Democratic Party" was probably made due to the rising new trend.

The question of military reduction and defense did not affect politics up to now but these issues will become one of the very important motivating powers in politics including the administrative reorganization.

Fourth is the introduction of the restricted roster system of proportional representation in the national constituency. If this system is enforced, a policy unification of those on the same list will become necessary which will mean that it would be more difficult for the LDP to remain split for the election, but there is also a possibility of the LDP splitting from the struggle for ranking and listing on the roster.

Dissolution Within a Year? Deliberate Scheme of Tanaka

From this standpoint, a factor for the split of LDP becomes definitely greater. In that sense, a reorganization of the entire political world may take place if the LDP split. However, the opposition parties' desire for the concentration of moderates and reorganization seem to have cooled off.

The joint regional election in April and the House of Councilors election in early July are expected next year. The results will differ according to the situations, but it is doubtful that the LDP will gain any more seats since the double elections of 1980 when the best results were obtained. If so, they can disregard the short-term situation and not hold the House of Councilors election in 1983.

The 1980 elections produced unexpectedly good results for the LDP and they feel that even if the election is moved up from 1984 to 1983 it will not produce better results. Besides there is no reason for double elections in 1983 at the time of deteriorating economy and restrictive finance. It is advisable for the LDP to maintain its absolute majority in the House of Representatives for the full term.

If the House of Representatives election is needed, it can take place during 1982. That is to say, if Kawamoto leads in the preliminary election and Nakasone receives two-thirds of the votes in the main election to become the president and Kawamoto the prime minister with the support of the opposition parties in the Diet, Tanaka may gamble once more in enforcing the dissolution and call for a general election of the House of Representatives, with the Lockheed decision coming up next year, and even if the LDP retains its absolute majority and Tanaka is judged guilty, the logic of the people that the problem of political responsibility had already been resolved will be upheld.

If the dissolution takes place, a total resignation of the cabinet is of course automatic and Prime Minister Kawamoto's term ends at that point. From that sense, the dissolution will become a good strategy for Tanaka and mainstream factions.

The House of Representatives election is believed possible when the internal strife of the LDP cannot be avoided and when the president and prime minister positions are held separately, and moreover, when the administration is conducted by a portion of the LDP members who become drawn into the opposition side.

The question is whether the present LDP has the energy to go that far or not. In viewing its vision of new leaders turning politics around and its future prospect and strength, the possibility of an early election of the House of Representatives is remote. A more orthodox thinking is to carry out the joint district election and the House of Councilors election as scheduled next year and form a new cabinet under a relatively stable base to formulate the 1984 budget at which time the dissolution of the House of Representatives will take place.

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CSO: 4105/060

ECONOMIC

ALUMINUM INDUSTRY'S STRUGGLE FOR SURVIVAL DISCUSSED

Tokyo TOKI NO KEIZAI in Japanese Oct 82 pp 12-17

[Text] "Crisis"—Is There Any Way the Aluminum Smelting Industry Can Survive?

Rescue Measures That Always Treat the Symptoms

In order to help the aluminum smelting industry, which has been in a serious structural depression, on 16 August MITI decided to take measures that involve commercial banks making 80 billion yen in emergency loans to the aluminum smelting industry in the second half of FY-82 and the government subsidizing the interest on the loans.

As is known, MITI has established the Special Committee on Policy Toward Basic Materials Industries within the Industrial Structure Council in order to reactivate the basic materials industries, which have been in an extreme slump. The committee has started studying comprehensive measures, including enactment of a new structurally depressed industries law in FY-83. In the case of the aluminum smelting industry, however, MITI recognizes that the situation is such that the industry cannot wait until then. In the meantime, MITI has decided to take "stopgap" measures.

The chief measure is an emergency loan to deal with the industry's worsening financial condition in the second half of this fiscal year. MITI has been considering two ways to make the loans. One possibility is to have the Metal Mining Agency of Japan obtain government-guaranteed loans from commercial banks and use the funds to buy 200,000 tons of aluminum ingot from industry inventories for the government stockpile. Another possibility is to have the Metal Mining Agency of Japan borrow money from commercial banks and lend it to the industry with aluminum ingot as collateral. In either case, the government will subsidize interest payments for 3 years (approximately 5 billion yen). As for the FY-82 portion of the interest payments, MITI is hoping to include it in the supplementary budget for FY-82, which is supposed to be compiled this fall. MITI intends to start negotiations with the Ministry of Finance in the near future.

In order to reduce the interest payment burden, which occupies approximately 15 percent of the cost of aluminum ingot (approximately 73 billion yen for

the whole industry in FY-81), MITI will ask parent companies and concerned financing institutions to cooperate in deferring interest payments. Moreover, the entire industry's outstanding debt at the end of FY-81 is 900 billion yen. On the condition that MITI will get a promise from the concerned financial institutions to postpone repayment of part of the debt, MITI will ask the aluminum smelting companies to separate operating plants from idle plants and transfer them to second companies. MITI is planning to guide the aluminum smelting industry in such reconstruction measures.

Nevertheless, the aluminum smelting industry is in a serious slump. This is clearly shown in the business results of three aluminum smelting companies (Nippon Light Metal, Mitsui Aluminum Industries, and Mitsubishi Light Metal Industries) for the period that ended in March. Due to a fall in the market for ingot and an increasing inflow of foreign ingot, the sales volumes of all but Mitsui Aluminum have decreased by a large margin. An increase in fixed costs resulting from reductions in production has also affected earnings. Consequently, the three companies are currently in the red. As a result, their cumulative losses have increased. In the case of Mitsubishi Light Metal, the liabilities exceed its capital. The liabilities of Nippon Light Metal and Mitsui Aluminum have reached a point almost exceeding capital. Adding the figures for Sumitomo Aluminum Smelting and Showa Light Metal, whose fiscal years end in December, to the first three companies, the total cumulative losses are 70.1 billion yen, while the total capital of all five companies amounts to approximately 77 billion yen. Since the aluminum smelting industry currently seems to be recording a total deficit of 6-7 billion yen every month, it is obvious that the aluminum smelting industry is virtually where liabilities exceed capital.

The aluminum smelting industry, which was once a leading industry, has fallen into a very depressed position. The primary cause is, needless to say, the high cost of electricity following the oil shock.

Aluminum smelting requires so much electricity that it is called a "can of electricity." Approximately 14,000 kWh of electricity is required to smelt 1 ton of aluminum. In Japan where a lot of electricity is generated by burning crude oil, the average unit cost of electricity for smelting aluminum is 16-17 yen per kWh. It is far more expensive than the 1-2 yen in Canada, where abundant hydroelectric power is available, or the 6-7 yen of West Germany, which generates electricity by burning domestic coal. With a difference of 10 yen per kWh, the cost of electricity in aluminum smelting differs by about 230,000 yen per ton. When the price of aluminum ingot is at most 400,000-500,000 yen per ton, this difference in the cost of electricity is decisive.

Only two plants can compete with cheap foreign electricity: Nippon Light Metal's Kanbara plant, which depends on hydroelectric power (unit cost: 1-2 yen), and Mitsui Aluminum's Omuta plant, which uses electricity generated by burning powdered coal produced in Mitsui's Miike Coal Mine (unit cost: around 9 yen).

The former benefits from the prewar Fuji River hydroelectric power project, and the latter has been continuously burning domestic coal disliked by others.

The combined smelting capacity of these two plants is 200,000 tons a year, slightly more than the 130,000-ton a year domestic capacity to smelt aluminum at the end of World War II. It is not too extreme to say that the history of aluminum smelting has reverted to the prewar situation.

Plunging into a Period of Worldwide Chaos.

There is, however, another big reason for the slump of the aluminum smelting industry: worldwide, the aluminum industry has plunged into a period of great confusion. Until the oil shock, world aluminum ingot prices exhibited a strong color of control by the six aluminum companies called the aluminum majors. The majors like Alcoa and Alcan supplied an overwhelming portion of world aluminum ingot production. With this power in the background, the majors were able to adjust supply and demand in each market and maintain prices at a stable level based on cost. The period in which the price of aluminum remained around 200,000 yen per ton lasted for a long time in Japan, too. Plants were basically located in markets where ingot was consumed. The weight of aluminum trade in the form of ingot as an intermediate material was extremely small.

This system, however, was suddenly shaken with the oil shock. With an increase in the smelting capacities of developing nations in the Middle East and Central and South America, aluminum ingot produced by developing nations had emerged in the international market as a source of disturbance. Because of rising energy costs and siting difficulties, many aluminum makers, including the majors, started smelting in foreign countries. Then, the foreign countries began to make strong demands for participation in aluminum production. In addition, expansion of the gap between supply and demand due to upheavals in the world economy spurred chaos in the aluminum industry.

As these factors compounded each other, the price of aluminum started to fluctuate widely. And aluminum's characteristic as a market commodity similar to copper has been strengthening. The listing of aluminum on the LME (London Metal Exchange) in 1979 was symbolic of the change.

Moreover, the price of aluminum ingot has continued to fall recently. When the Aluminum Subcommittee of the Industrial Structure Council started studying measures to revive the aluminum smelting industry last spring, the opinion that "a capacity of 200,000 tons a year can be saved" was asserted. Now, however, such "optimistic views" have faded. A view that "even a capacity of 100,000 tons cannot survive...." or that the aluminum smelting industry will be totally wiped out has been gaining strength.

When the aluminum ingot market collapsed last spring, prices went down to \$1,400-\$1,500 per ton at most. But it was expected that the market would bounce back to \$1,750 per ton, the Alcan quotation that was the guideline price for aluminum ingot transactions. Under these conditions, concerned sources believed that the Omuta and Kanbara plants with relatively low production costs could survive.

Since then, however, the market has continued to decline. At present, aluminum ingot prices are around \$1,000 per ton. Although this price level is too low judging from the production costs of the world's aluminum smelters, people no longer think the price will go back to \$1,750 per ton.

Instead, Alcan, the supposed price leader, abandoned its own quotation and started selling aluminum ingot at low prices. Alcan has been considered excellent in price competitiveness. Alcan's reasons for starting to release low priced aluminum ingot are as follows: "It may be a part of Alcan's strategy to kick down competitors such as Japanese aluminum smelters which have been in a tight situation due to the persistence of a sluggish market."

Whether or not Alcan adopts an aggressive low-price strategy, excessive supplies in the world aluminum market are expected to continue increasing. In the Middle East, oil-producing nations began smelting aluminum one after another in order to utilize their natural gas. They are supposed to start exporting 500,000 tons of aluminum ingot several years from now. Overseas aluminum smelting projects promoted by Japanese aluminum smelting companies, such as the Asahan project in Indonesia, are about to start full operation. On the other hand, demand is not increasing as much as anticipated, partially because of the worldwide economic recession.

As a result, this is the greatest buyers' market for aluminum ingot ever. The world aluminum industry seems to have plunged from "an age of coexistence" into "an age of competitiveness." Not only Alcan, but other majors such as Alcoa of the United States, the world's largest aluminum smelter and roller, and France's Pechiney-Ugine-Kohlmann are forced to review their world strategies. This is the current condition in the aluminum industry.

Active Tieups of International Capital

Under these conditions, international tieups have become popular in order to make up for each other's weaknesses. This April, Showa Light Metal announced that it had reached an agreement on a capital tieup with Comalco, an Australian aluminum smelting and rolling company, and its parent company, CRA—an announcement which shocked the Japanese aluminum industry. This is one example of an international tieup.

The content of the agreement is as follows: Showa Light Metal will increase its capital from 17 billion yen to 50 billion yen; Australia's CRA will subscribe to half of the total capital—25 billion yen; at the same time Showa Denko will transfer its shares of Showa Aluminum and Sky Aluminum, aluminum rolling companies in the Showa Denko group, to Showa Light Metal; and thus CRA will indirectly subscribe to the shares of those two aluminum rolling companies.

Here we can see Showa Denko's decision to give up domestic smelting quickly and try to find an alternative way to rebuild its aluminum business by means of a tieup with foreign capital. However, CRA also has its own reasons for spending an enormous 25 billion yen.

Comalco owns aluminum smelting facilities with capacity to produce 200,000 tons a year in Australia and New Zealand. It is also the largest shareholder in the Boyne project developed jointly with Japan. It is currently pursuing an expansionary policy. Comalco's weakness in comparison with the so-called majors, however, is a lack of stable customers for aluminum ingot. As for exports to Japan, it sells aluminum ingot to Kobe Steel, a rolling mill, and some others. However, its aluminum ingot is sold in spot transactions. Along with its expansion of production capacity, Comalco needed stable customers for aluminum ingot. For this reason, it had its eyes on the Showa Denko group.

That same April, Alcoa of Australia, a subsidiary of Alcoa, requested three Japanese aluminum smelting and rolling companies to subscribe to shares in its aluminum smelting project in Portland, Victoria. This was also intended to seek a sales route for aluminum ingot in Japan. The three Japanese companies which were approached by Alcoa of Australia—Mitsubishi Light Metal, Sumitomo Aluminum Smelting, and Furukawa Aluminum—all have contracts with Alcoa of Australia to buy large quantities of alumina. Due to the reduction in domestic smelting, however, the three companies now cannot accept the contracted quantity of alumina. Although Alcoa of Australia says that the request for subscription to shares in its new project has nothing to do with the alumina contracts, it is also true that its request is not something the three companies can simply reject.

Among Japanese aluminum smelters, Nippon Light Metal, Toyo Aluminum (Alcan holds 50 percent of the shares of both), and Furukawa Aluminum (Alcoa holds 33 percent of its shares) already have close capital tieups with the majors. Mitsubishi Aluminum, which used to have a tieup relationship with Reynolds, cancelled its ties in early June. Together with Mitsubishi Light Metal, it is attempting to approach Alcoa. Taking into account the Sumitomo and Mitsui groups, which are independent of foreign capital, tieups of Japanese aluminum makers with foreign capital will increase hereafter.

The Uneasy Relationship Between Smelters and Rolling Mills

In the meantime, there is a possibility that a change may occur in the relationship between smelters and rolling mills in Japan. At present, the purchase of relatively expensive domestic aluminum ingot because of a past relationship means nothing but suicide for rolling mills. The price level of imported aluminum ingot is 300,000 yen per ton. Even if 40,000-50,000 yen is added for miscellaneous expenses and the middleman's profit margin, it is lower by far than the 488,000 yen per ton domestic quotation calculated on the basis of production costs of domestic aluminum smelters. At present, the difference between the domestic quotation and the actual sales price is absorbed by the smelters as their deficit. This difference is expected to expand hereafter, and is likely to exceed the limit of the smelters' tolerance. If the rolling mills sympathize with the smelters and share the burden, they will go bankrupt together. The rolling mills must shut their eyes to the smelters' plight and cut off their business relationships.

Among the rolling mills, building materials and sash makers have been engaging in a bloody sales war. In order to win in this severe competition, small and medium-size sash manufacturers are naturally attracted to cheaper foreign aluminum ingot imported by trading companies. Major rolling mills began to secure supplies of foreign ingot as early as 2-3 years ago. In the case of the Boyne project in Australia, for example, three companies—two major rolling mills, Sumitomo Light Metal and Kobe Steel, and one sash manufacturer, Yoshida Industries—together own 36 percent of the shares. At present, they bring 73,000 tons of aluminum ingot a year into Japan.

Furthermore, rolling mills and sash makers which have a close relationship with domestic smelters also have started to secure supplies of foreign ingot recently. Sankyo Aluminum Industries, which has a close relationship with Sumitomo Aluminum, decided to use imported aluminum ingot and signed a long-term contract with a Spanish smelter. This can be said to be a symbolic development.

Sankyo Aluminum, a rolling mill, and Sumitomo Aluminum, a smelter, formed the core of the new industrial city plan featuring the Toyama New Harbor in Toyama Prefecture. Together they made up one smelting-rolling system. Even Sankyo Aluminum was pressured to reexamine completely its relationship with the domestic smelting industry. Sumitomo Aluminum is still operating its smelting facility in Toyama at the scanty pace of 1,000 tons a month. Sankyo Aluminum and its related rolling mills are still buying Sumitomo Aluminum's ingot little by little. However, the true feeling of Sankyo Aluminum Industries is that "our relationship with Sumitomo Aluminum has reached the limit." On the other hand, if Sankyo Aluminum totally stops buying aluminum ingot from Sumitomo Aluminum, the latter will lose its largest customer and therefore be forced to close the plant. Then, the whole industrial region surrounding the Toyama New Harbor will be damaged greatly.

Not only in the case of Toyama but also in many other local industrial districts, the aluminum smelting industry's slump is casting a dark shadow over the local economy. With the dissolution of Sumitomo Light Metal Aluminum, its smelting plant in Sakata City, Yamagata Prefecture ended a short operational history of 5 years. Sumitomo Light Metal Aluminum had accounted for 31 percent of manufactured good shipments in Sakata. As a result, Sakata petitioned MITI for designation as a depressed area. Sakata's local government has been busy working out countermeasures.

Sumitomo Light Metal Aluminum originally decided to build a plant in Sakata, a city with a population of 100,000, and signed a contract with the prefecture to purchase land. That was in July 1972, 1 year before the first oil shock. At the time of Sumitomo Light Metal Aluminum's move, Yamagata Prefecture and Sakata City had drawn up a regional development plan based on the assumption of high economic growth. The prefecture and city planned to expand Sakata's north bay to build an industrial harbor. Once the harbor was complete, they intended to invite enterprises to build plants. This was a survival measure for Sakata, which was located between the new industrial cities of Akita and Niigata. According to "The Plan To Establish a Sakata Coastal Industrial District" prepared by Yamagata Prefecture at that time, the

future Sakata was supposed to be a city of basic materials industries such as aluminum, steel, and lumber. The aluminum industry's withdrawal destroyed the city's magnificent plan while its architects were still dreaming of the first stage.

Not only Sumitomo Light Metal Aluminum in Sakata but also Showa Light Metal in Kitakata City, Fukushima Prefecture, is planning to shut down a smelting facility. In the case of both Sakata and Kitakata, the local governments came to realize that the companies' arrivals and departures were based solely on internal corporate calculations. Local governments do not have the power to overturn corporate policies.

Expectation for a New Smelting Method That Does Not Need Electricity

At any rate, the Japanese aluminum smelting industry is on the verge of annihilation. If the industry sits and waits, annihilation will be the only outcome. The Japanese aluminum smelting industry once possessed the capacity to produce 1.64 million tons a year. According to the structural reform measures after the first oil shock, however, some facilities were abolished or shut down. As a result, official capacity is currently 1.11 million tons per year. However, the capacity of facilities actually operating now is below 500,000 tons per year. And the supply still tends to be excessive. Production of ingot dropped sharply to 208,361 tons in the first half of this year, a 51.4-percent decrease from the same period a year ago. On the other hand, imports of aluminum ingot in the first half of this year reached a record high 650,677 tons (a 33.6-percent increase over the same period a year ago).

The aluminum smelting industry has desperately appealed to the Aluminum Subcommittee of the Industrial Structure Council for a series of cost-cutting and development measures, such as the lowering of the unit cost of electricity. However, the industry's desperate appeals could not persuade the electric power industry to abandon its cost formula. It could at most obtain a 1-2 yen reduction by widening application of a special rate equivalent to the night users' rate in the present rate structure.

In addition, revival of a tariff quota system has been discussed. At present, a 9-percent tariff is imposed on aluminum ingot imports. The tariff quota system involves the government's reduction of the tariff to zero in ingot developed and imported by Japanese smelting companies and by a certain percentage on ingot imported by users. Then, importers would be asked to contribute the money saved through tariff reduction to a rescue fund for the aluminum smelting industry. This system was adopted by the Industrial Structure Council previously, and carried out in FY-78 and FY-79. The Ministry of Finance, however, strongly opposes the tariff quota system. Moreover, the Second Provisional Administrative Reform Council has been asserting its major policy of reducing government subsidies. It is hard to predict how substantial this system may be when it is adopted as a policy.

Putting aside the question of effectiveness, the industry hopes to survive in the following way.

The price of Japanese aluminum ingot is about 500,000 yen per ton, including a certain percentage of profit. Except for extremely cheap spot prices, the price of imported ingot is about 370,000 yen per ton. Various expenses for importation are 40,000-50,000 yen. The advantages of domestic ingot, such as reliable delivery and no exchange risk, may be worth about 20,000 yen. In this case, the price differential between domestic and foreign ingot is 60,000-70,000 yen per ton.

The demand for aluminum is assumed to be approximately 2.1 million tons in 1985. Suppose we want to save facilities for producing one-third of the demand—700,000 tons a year. Of the facilities to produce 700,000 tons a year, those producing 200,000 tons a year are already competitive. Therefore, the industry wants some countermeasures to supplement the gap of 60,000-70,000 yen per ton for facilities producing 500,000 tons a year. Assuming the gap is 70,000 yen, a fund of 35 billion yen is needed.

The most desirable way of closing the gap would be to lower the cost of electricity. If the cost of electricity cannot be lowered, the gap must be supplemented by a tariff. In this case, this measure must be of medium- to long-term duration, until the gap between domestic and foreign prices shrinks due to an increase in overseas development costs, instead of the limited 1-2 years as in the previous case. This is the survival measure for which the industry hopes.

As a more fundamental measure, the industry has been jointly engaging in research on "an aluminum smelting method that does not use electricity." In addition to Mitsui Aluminum, which has been doing research and development on its own, Nippon Light Metal, Showa Light Metal, Mitsubishi Light Metal, and Sumitomo Aluminum have joined the joint research,

The five companies are rushing to form a joint research association based on MITI's concept of a joint government-private sector development plan. MITI's plan is as follows: (1) the aluminum smelting companies would form a research and development cooperative with the companies paying operational expenses; (2) in order to establish a blast furnace smelting technology, the cooperative would rebuild an experimental plant with capacity to produce 1-2 tons of aluminum ingot per day, and then put a developed method into practical use in 6 years; and (3) the government would pay the 6-billion-yen cost of building an experimental plant. The five companies have already reached basic agreement on each company's contribution to the cooperative, maintenance of secrecy on new technologies, and measures to spread the risk. The immediate goal is to build a bench-scale plant for 320 billion yen by the end of March 1984.

The present electrolytic method smelts aluminum by turning bauxite into alumina and then electrolyzing alumina to obtain aluminum. The blast furnace method, however, is different from the present electrolytic method. It is intended to produce aluminum in a furnace, as in the case of steel. Specifically, the process is to put a clay and coke dumpling into a blast furnace, to raise the temperature inside the blast furnace to over 2,000 degrees C by blowing in pure oxygen to make a compound metal that includes aluminum

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silicate and iron, to add liquid lead to the compound metal so that the lead can absorb the aluminum, and to lower the temperature to extract the aluminum. In addition to using no electricity, this method has other merits such as possible diversification of materials and the merit of scale economies.

The industry has the new method under particularly close scrutiny as a means of eliminating the difference in production costs between domestic and foreign aluminum ingot, which would be impossible with the electrolytic method.

The blast furnace smelting method has been developed jointly by Mitsui Aluminum, Mitsui Alumina, and Mitsui Mining and Smelting. They perfected the new method in the laboratory and applied for a patent at the end of last year. In practical application, however, there remain various problems such as developing furnace equipment which can tolerate temperatures 1,000 degrees C higher than in steel making, problems that accompany operation of large blast furnaces, and the technical problem of establishing a continuous operational technique. Furthermore, even if they succeed in putting the furnace smelting method into practical use, how can the virtually bankrupt aluminum smelters raise the enormous capital investment required for the new facilities? In reality, the prospects of this method are still unknown.

Still, We Need Domestic Smelting

Along with the formulation of survival measures at the policymaking level, each maker has been working industriously for survival.

Their efforts can be divided into two types. One type is a tendency to retain domestic smelting capacity by any means and switch electric power sources from crude oil to coal. Another is a tendency to reduce domestic smelting, to develop smelting operations overseas which would ship ingot to Japan, and to save the aluminum rolling and processing businesses in Japan. Nippon Light Metal has been positively shifting emphasis from the material department to the processing department in order to raise the value added of its output. As previously mentioned, the Showa Denko group has signed a tieup contract with CRA-Comalco and shifted from domestic smelting to imported ingot. These are examples of the latter tendency. Sumitomo Aluminum has been exporting smelting technology and has achieved a good record. Whether switching to coal, changing the smelting method, or depending on foreign ingot, the risk is great. In the case of switching to coal-generated electricity, which depends on foreign coal, in particular, it is not clear how competitive domestic smelting by this means can become.

If domestic smelting can survive as an industry, it can only happen under the following conditions.

First of all, the immediate crisis must be solved through financial support and a tariff quota system. In the meantime, world demand will increase and therefore prices will rise. On the other hand, world aluminum manufacturers' smelting projects in Australia and other places will be delayed. Then, the trend will be toward supply shortages in the future. With expansion of

inflationary capital investment, the cost of ingot produced in new plants will keep rising. The majors' quotations will be determined by the cost of ingot produced in the new plants. Meanwhile, the price of coal will moderate. After switching to coal, domestic ingot prices will become competitive with imported ingot purchased under long-term contracts. Eventually, the new smelting method will be proved out.

The possibility of future events following such a scenario cannot be entirely denied. Depending on the correlation between energy costs and capital investment costs, the gap between the prices of domestic and foreign ingot may be reduced. Actually, however, users such as rolling mills and sash makers have been increasing purchases of foreign ingot on the spot market and decreasing use of domestic ingot.

Users insist on domestic ingot when they need high purity aluminum ingot, but this is only a very small portion of total demand for aluminum ingot. From 1979 through early 1980, domestic smelting companies which were eager to reduce deficits kept raising the domestic quotation of aluminum ingot as the international market prices rose. This fact weakens the smelters' argument that the existence of domestic ingot capacity enhances the bargaining power of ingot purchasers.

Although noting Japanese smelters' loss of competitiveness, the majors have not acted to exploit the opportunity. Hereafter, however, they may try to gain a market share in Japan with the weapon of favorable long-term contracts.

Doesn't Japan need its own aluminum smelting industry? From the long-term viewpoint, demand for aluminum will increase. If Japan depends on foreign ingot to meet its entire demand, we will need various, diversified long-term contracts in order to avoid country risk. In today's world situation where we do not know what will happen next, abolition of aluminum smelting in Japan is questionable from the standpoint of national security. We can develop smelting plants overseas and import ingot, or we can export smelting technology, while we maintain our own aluminum smelting industry. By having our own smelting industry, we can maintain technology and raise funds for capital investment.

According to a survey conducted by the Japan Aluminum Federation, 28.6 percent of the free world's aluminum smelting capacity was nationalized in 1981 (a 4.4 percent increase from the previous year). Within Europe, the percentage has reached 61 percent (a 12.8 percent increase from the previous year). Outside the United States, most countries follow a one-or-two-companies-per-country system. Judging from this, it is clear that a certain domestic smelting capacity is necessary in order to secure a stable supply of aluminum ingot over the long term. For this reason a drastic reform of the condition of the aluminum smelting industry is necessary.

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CSO: 4105/010

SCIENCE AND TECHNOLOGY

FY 83 SCIENCE, TECHNOLOGY-RELATED DRAFT BUDGET REPORTED

Tokyo KAGAKU SHIMBUN in Japanese 10 Sep 82 p 1

[Text] The FY 83 draft budget preliminary funding requests, as submitted by the various ministries and agencies to the Ministry of Finance before the end of August, have been made public by the respective ministries and agencies. In the science and technology [S&T]-related category, the Ministry of Education, which is responsible for the promotion of basic sciences (academic), is seeking funds for scientific research subsidies and for the expansion and intensification of energy-related scientific research. Of the S&T-related funding requests by the Science and Technology Agency, other than a threefold-plus increase over last fiscal year being sought for the international science fair (scheduled to open in March 1985), the funding levels requested for the development of atomic power, space, and the ocean remain pretty much the same as before. The International Science and Technology Agency, under the Ministry of International Trade and Industry, has newly requested funds for a large-scale project, "Development of the ultimate-work robot." The Agriculture, Forestry and Fisheries Research Council, under the Ministry of Agriculture, Forestry and Fisheries, has requested funds for an organizational restructuring (abolishment of two research laboratories, major scaling-down of one laboratory, and establishment of two new laboratories).

Ministry of Education

The FY 83 budget request of the Science/ International Bureau, Ministry of Education, has placed its main thrust on the expansion of funds for scientific research and on the promotion of key basic research. Subsidies for scientific research will exceed the 40-billion-yen mark by 200 million yen, an increase of 5.79 percent over the preceding fiscal year. As for key basic research, energy-related scientific research calls for 30.33 billion yen, an increase of 25.18 percent over the preceding fiscal year.

1. Expansion of Scientific Research Funds

"Subsidies for scientific research expenses" in the amount of 40.2 billion yen (vs. 38 billion yen last fiscal year) are being sought; this is an increase of 5.79 percent over last fiscal year.

Of this amount, 2 billion yen (vs. 1 billion yen) will go to "special priority research" and 3.573 billion yen (vs. 2.98 billion yen) to the "promotion of joint research with private researchers," both of which will thus receive added emphasis.

"Subsidies for private university research facilities, etc." call for 2,005,936,000 yen (vs. 2,205,936,000 yen), a reduction of 200 million yen from last fiscal year, reflecting the thrust of the basic report given during the preliminary hearing.

2. Promotion of Key Basic Research

Earmarked for "promotion of energy-related scientific research" is 30,338,434,000 yen (vs. 24,228,228,000 yen), reflecting a large increase of 25.18 percent over last fiscal year.

a. Scientific research subsidies for "energy special research:" 2.1 billion yen (vs. 2.1 billion yen)

b. For energy-related scientific research at national universities: 17,851,434,000 yen (vs. 16,770,228,000 yen), of which:

(1) For nuclear fusion research: 12,961,165,000 yen (vs. 11,999,219,000 yen)

(2) For research related to new energy sources and energy conservation: 4,890,269,000 yen (vs. 4,771,009,000 yen)

c. For accelerator science (The 2nd Accelerator Plan; the 3d Year Phase of the Tristan Plan): 10.387 billion yen (vs. 5.358 billion yen)

The amount requested for "clarification of space and earth environment" is 22,084,232,000 yen (vs. 18,143,798,000 yen), an increase of 21.72 percent over last fiscal year.

a. For space science (launching and observation of scientific satellites): 15,672,265,000 yen (vs. 12,926,027,000 yen)

b. For oceanographic science (international deep-sea excavation plan; IPOD share contribution): 458 million yen (vs. 372,125,000 yen)

c. For early detection of earthquakes and volcanic eruptions: 3,301,094,000 yen (vs. 2,228,326,000 yen)

d. For Antarctic region observation work (conducting the 25th observation; launching a new icebreaker, the "Shirase"): 3,652,873,000 yen (vs. 2,617,320,000 yen)

The amount requested for "life science studies" is 734,777,000 yen (vs. 310,663,000 yen), an increase of 36.52 percent [as published; should be 136.52 percent] over last fiscal year. Cell engineering research is one of the items to be intensified.

3. Improvement of Academic Exchange and Cooperation Posture

For "preparatory survey for establishment of University Science Hall (tentative name): 60,134,000 yen (vs. 20,043,000 yen)

For "improvement of a joint research system" (improvement of facilities jointly used by national universities): 23,995,228,000 yen (vs. 17,287,677,000 yen)

For "promotion of joint research with private sectors:" 3,503,620,000 yen (vs. 2,673,620,000 yen)

For "projects by Japan Society for the Promotion of Science:" 3,317,490,000 yen (vs. 3,120,136,000)

a. Invitation of 30 (vs. 20) young foreign researchers--the 10 new ones will be from France.

b. Scientific exchanges with developing nations.

4. Promotion of International Exchange and Cooperation

For "international scientific exchange and cooperation activities:" 4,000,631,000 yen (vs. 3,678,914,000 yen)

a. For scientific exchanges with developing nations: 476,612,000 yen (vs. 412,631,000 yen)

(1) Exchanges through the designated university-base system, (e.g., Kobe University Medical School with the Philippines; Tokyo University Engineering School with Singapore)

(2) Aid to individuals desiring to work on their doctoral dissertations (to accept 24 persons; to dispatch 12 persons)

b. For international joint research, etc.: 3,226,221,000 yen (vs. 3,022,645,000 yen)

(1) For the convening of international symposia: 123,688,000 yen

(2) For international joint research projects: 3,102,433,000 yen (vs. 2,951,248,000 yen)

c. For cooperation with the United Nations University (preparation of basic plans for central facilities, etc.): 258,154,000 yen (vs. 224,156,000 yen)

d. For testing Japanese-language ability of foreigners: 3,872,000 yen (new item)

e. Invitations to 50 (vs. 25) English-language instructions of British nationality

For "sending students abroad for study:" 8,016,328,000 yen (vs. 6,912,060,000 yen)

For "educational cooperation through UNESCO, etc.:" 946,091,000 yen (vs. 889,364,000 yen)

For "education of Japanese children overseas:" 15,183,653,000 yen (vs. 12,805,877,000 yen)

Science and Technology Agency

The Science and Technology Agency has recently prepared and made public its preliminary budget request for FY 83. The amount requested consists of 332,096 million yen for the general account and 73,891 million yen for the special account of measures to promote the development of electric power, making the Agency's overall total 405.987 billion yen, an increase of 5.2 percent over the 386.088 billion yen last fiscal year.

Included in the budget for the next fiscal year is a request for 16.816 billion yen (3.5 times larger than the amount last fiscal year), for the construction of a government exhibit hall, etc., at the "science fair" of 1985, which is approaching rapidly. In addition, 6.661 billion yen, an increase of about 10 percent over last fiscal year, is requested for expansion of the promotion and regulation of science and technology; and 2.275 billion yen, an increase of about 15 percent over last fiscal year, is sought for the promotion of creative science technology. The funding request levels for atomic power and space remain about the same as in the preceding fiscal year.

"Reinforcement of the planning and regulatory function in science and technology administration through expansion of science and technology promotion subsidy:" 6.661 billion yen, of which:

- a. For the expansion of the science and technology promotion subsidy: 6.661 [as published] billion yen
- b. For the formulation of science and technology basic plans: 61 million yen

"Promotion of Creative Science Technology through use of fluid research system:" 2.275 billion yen

"Promotion of atomic power development and utilization 176.21 billion yen, of which:

- a. for atomic power safety regulatory administration and environmental safety measures: 2.132 billion yen
- b. for Reactor and Nuclear Fuel Development corporation: 68.436 billion yen, on which:

-19.547 billion yen: development of fast-breeder reactors

-1.842 billion yen: development of an new model converter

-6.1 billion yen: overseas survey and exploration of uranium resources

-3.127 billion yen: development of uranium enrichment technology

- c. For Japan Atomic Energy Research Institute: 84.03 billion yen

-7.471 billion yen: safety research

- 34.572 billion yen: Construction of JT-60
- 1.341 billion yen: Japan-U.S. nuclear fusion cooperation
- 5.02 billion yen: research and development of multipurpose high-temperature gas reactor
- d. For Japan Nuclear Ship Development Agency: 11.303 billion yen, of which:
 - 8.048 billion yen: improvement of newly designated mooring harbor
- e. For National Institute of Radiological Sciences: 6.131 billion yen
- f. For atomic power research by Institute of Physical and Chemical Research: 1.584 billion yen, of which:
 - 1.077 billion yen: construction of heavy-ion accelerator
- "Promotion of space development": 87.676 billion yen, of which:
 - a. For National Space Development Agency: 86.307 billion yen
 - 24.629 billion yen: development of N-1 rocket
 - 4.569 billion yen: development of communications satellite No 2
 - 6.279 billion yen: development of broadcast satellite No 2
 - 4.932 billion yen: development of Geostationary meteorological satellite No 1
 - 12.06 billion yen: development of oceanographic observation satellite No 1
 - 768 million yen: development of V-model Technological Test satellite
 - 20 million yen: research and development of broadcast satellite No 3
 - 961 million yen: research and development of earth resources exploration satellite No 1
 - 1.212 billion yen: development of phase-one space materials experiment system
 - 55 million yen: research and development of improved rocket-launch capability
 - b. For space development research by National Aerospace Laboratory: 838 million yen, of which:
 - 91 million yen: research on key elements of liquid oxygen/liquid hydrogen rocket engines
 - 64 million yen: research on basic satellite technology

"Promotion of oceanographic development: 5.47 billion yen

a. For Oceanographic Development Center: 5.267 billion yen

-1.47 billion yen: construction of underwater experimental ship, as part of research and development of diving technology

-1.51 billion yen: research and development of deep-sea and submergence survey ship, including 8 million yen for exploration of 6,000-meter-class submergence survey ship system

-65 million yen: research and development of oceanographic energy

b. For other oceanographic development projects: 203 million yen

-96 million yen: survey and research on development and utilization of the Japan Current

-86 million yen: research and development of oceanographic remote survey technology

"Promotion of important general research:" 27.194 billion yen

a. For advancement of life sciences: 1.088 billion yen, of which:

-1.082 billion yen: life science activity at Institute of Physical and Chemical Research, including 553 million yen for construction of gene-alteration research facilities (P-4)

b. For promotion of disaster prevention science technology: 2.299 billion yen

-2.249 billion yen: disaster prevention research at National Disaster Prevention Science Technology Center, including 1.046 billion yen for research on early detection of earthquakes

149 million yen for research on earthquake disaster countermeasures, and 116 million yen for research on snow-damage countermeasures

c. For promotion of aeronautical research and development at National Aerospace Laboratory: 9.133 billion yen, including 5.834 billion yen for research and development of fan-jet STOL test plane

d. For Institute of Physical and Chemical Research: 6.931 billion yen, including 288 million yen for laser science technology research

e. For promotion of research and development work on material technology for such materials as related to science technology: 5.366 billion yen

-3.758 billion yen: materials research at Metal Materials Technology Laboratory

-1.608 billion yen: materials research at National Institute of Research in Inorganic Materials

f. For promotion of resources synthetic utilization methods: 372 million yen

-263 million yen: for National Institute of Resources

-75 million yen: corroborative survey of regional energy synthetic utilization system

-10 million yen: basic technology toward effective utilization of protein

g. For promotion of commercialization of new technologies and technology transfers: 2.005 billion yen

-1.979 billion yen: for Japan Research Development Corporation

-Ceiling for commissioned developmental contract amounts: 4.7 billion yen

"Promotion of international cooperation:" 14.78 billion yen

-Promotion of cooperation with advanced nations: 14.48 billion yen

-Promotion of cooperation with developing nations: 86 million yen

-Promotion of cooperation with international organizations: 214 million yen

"Improvement of the foundation for advancement of science and technology:" 4.992 billion yen, of which:

a. For strengthening the research foundation through training of researchers and other means: 365 million yen

b. For promotion of research exchanges at Tsuba Research Institute City: 61 million yen

c. For facilitation of information flow: 4.331 billion yen

"Promotion of preparations for holding the International Science and Technology Fair": 16.816 billion yen

-Promotion of government exhibit-related activities: 8.504 billion yen

-Aid to International Science and Technology Fair Association: 8.312 billion yen

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SCIENCE AND TECHNOLOGY

BRIEFS

PRC TOOLS' IMPORT--Osaka, 18 Oct (KYODO)--Fanuc Ltd., a major industrial robot and numerically-controlled (NC) equipment maker, said Monday it will purchase a machine center (MC) and other NC machine tools from China in November. Fanuc will be the first Japanese company to import NC machine tools from China. A company official said the company will buy an MC, NC grinder and NC lathe to be used at a company's manless factory for production of motors. China has produced the machines with technologies for controlling parts supplied by Fanuc but has made it possible to cut down production cost on its own. Compared with Japanese NC machines to equivalent capability, the Chinese equipment is much cheaper with each purchase price not exceeding an estimated dollar 50,000. Licensed by Fanuc, China began production of NC machine tools in September last year at an annual rate of 1 million units. China won an order of 10 NC grinders from the United States early this year, the official said. With China positive in continuous cooperation with the Japanese firm, the current purchase deal is taken by industry observers as a transitional step for Fanuc to export high-quality but cheap machine tools connected with industrial robots. [Text] [OW252351 Tokyo KYODO in English 0648 GMT 18 Oct 82 OW]

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